DOCUMENT RESUME

ED 327 576 TM 016 023

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TITLE Designing a Mathematics Predictor Test for the TASP (Texas Academic Skills Program) Test.
SPONS AGENCY Texas Education Agency, Austin.
PUB DATE Jan 91
NOTE 25p.; Paper presented at the Annual Meeting of the Southwest Educational Research Association (San Antonio, TX, January 25, 1991).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS College Bound Students; *College Entrance Examinations; College Students; Higher Education; High Schools; High School Seniors; *Mathematics Tests; *Predictive Measurement; Readiness; State Programs; *Student Placement; *Test Construction; Testing Programs; Test Interpretation; Test Items
IDENTIFIERS Test Batteries; *Texas Academic Skills Program

ABSTRACT

A battery of mathematics tests was developed to predict: (1) student success on the mathematics subtest of the Texas Academic Skills Program (TASP), basic skills tests required upon entry into public colleges or universities in Texas; and (2) student readiness for college level mathematics. The developed tests were intended to provide universities with information beyond the mere assessment of present skills given by the TASP. TASP specifications were rewritten by project staff into 63 subskills, for which a pool of 290 items was formed. The pool was reduced to 150 items, used to develop four pilot forms of the predictor tests. These tests were administered to 10 groups of high school, community college, and university students for a total of 760 usable scores. Using these scores and demographic data on the students represented, four final forms were developed--two for general use, and two for the specific purposes of the University of Texas (El Paso). Recommended cutoff scores were established for placement purposes. The test and its cutoff scores are available for institutions wishing to advise students on their chances of passing the mathematics portion of the TASP. An appendix provides details about the tests, including socre interpretation charts for high schools and colleges, as well as instructions for students on how to interpret test scores. (SLD)

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DESIGNING A MATHEMATICS PREDICTOR TEST FOR THE TASP (Texas Academic Skills Program) TEST

by

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A Paper Presented at the Annual Conference
of the
Southwest Educational Research Association

San Antonio

January, 1991

TM016023

ABSTRACT

This paper reports on the development of mathematics tests designed to predict (a) student success on the mathematics sub-test of the Texas Academic Skills Program (TASP), and (b) student readiness for college level mathematics. This project was funded by the Texas Education Agency under an ECIA grant for "attracting and retaining quality candidates in teacher education" and is a direct descendant of several earlier testing efforts by UTEP faculty.

1. Introduction

Beginning in Fall, 1989, all students entering a public college or university in Texas must take basic skills tests in reading, writing, and mathematics. Colleges and universities are required to provide developmental assistance to students who do not pass these tests. Such students may earn no more than sixty semester hours of credit before passing these tests (Texas Legislature, 1987). This requirement, known as the Texas Academic Skills Program, or TASP, was adopted by the Texas Coordinating Board of Higher Education (Alpert, et.al., 1989). after several years of experience on the part of the Texas Education Agency (TEA) with similar tests for prospective teachers known as the Pre-Professional Skills Tests (Educational Testing Service, 1982). The TEA requirement was phased out as the TASP effort began.

As the new requirement was implemented, The University of Texas at El Paso found the problem of maintaining a strong record of equal student opportunity shifting from a teacher education testing issue to a campus-wide problem. The university responded with the test development effort described herein and with the creation of a comprehensive Academic Development Center described elsewhere.

2. Earlier Test Development Efforts

In a manner of speaking, this project was a logical outgrowth of a previous UTEP testing effort. When faced with the Pre-Professional Skills Tests (PPST) requirement, a number of faculty in the College of Education worried about the ability of minority students to pass such tests. After all, it is commonly held that minority students tend to do less well on tests than white/Anglo candidates. This issue was especially important because the university serves an ethnically diverse city on the U.S. - Mexican border. University enrollment was more than 50% Hispanic when the TEA requirement began. (Currently, campus Hispanic enrollment approaches 57%.)

Beginning in 1983, several faculty members in the College of Education developed a testing/advising program for the PPST. Prospective teachers were given locally developed predictor tests and advised on how to prepare for the PPST. This effort successfully avoided a decline in minority teacher candidate enrollment (Heger and Salinger, 1985). Although research with the UTEP predictor tests confirmed that minority students would not score as well as white students, perhaps more importantly, the finding suggested that too many college students, of all ethnic groups, lacked basic skills (Heger and Burns, 1988).

3. Moving From the PPST to the TASP

By the time the Coordinating Board of Higher Education adopted the TASP requirement, the University of Texas at El Paso faculty and administration were ready to adopt a campus-wide strategy of developmental diagnosis and instruction. Within the testing aspects of this decision, it was decided that the previously developed tests still had utility in reading since the TASP reading and writing requirements are very similar to those of the PPST.

However, a major difference exists between the PPST and TASP tests in mathematics. The PPST mathematics test assessed eighth grade math skills with an emphasis on application, reasoning and word problems, while the TASP assesses readiness for college algebra (National Evaluation Systems, 1988 and Educational Testing Service, 1982). Consequently, the mathematics section of the TASP was seen by UTEP faculty as a potentially dangerous aspect of the TASP. Many entering college students, especially older students, still lack a full college preparatory mathematics background. This concern was validated by the initial 74% campus-wide mathematics failure rate at UTEP (Office of Institutional Studies, Fall, 1989).

One of the university's responses to this problem was the development of a battery of mathematics predictor tests. These tests were to be suitable for use in advising high school, community college, and university students regarding TASP preparation well in advance of student need to take the actual test. Additionally, it was determined that a version of the test could serve as a college level mathematics placement test. Participants in this development project included, Dr. Ralph Ligouri, Dr. Richard Burns, Dr. Simon Bernau, several mathematics educators from local high schools and the El Paso Community College, as well as the author.

4. Some Observations About Testing and The UTEP Effort

From a curriculum planning perspective, there are at least four testing functions:

1. Assessing present competence,
2. Predicting future performance.
3. Placing a student in a particular class.
4. Diagnosing instructional needs.

In other words, the staff of any academic development service generally needs to use PREDICTOR, PLACEMENT, and DIAGNOSTIC tests according to the demands of the situation.

Conceptually, tests such as the well-known Texas high school exit test (TEAMS) and the Pre-Professional Skills Tests are minimum competency tests. That is, the standards of the test are not supposed to be set by a norm group. Rather these tests aim to determine whether specific skills do or do not exist on a minimum level. Similarly, the TASP is a competency test, although requiring more advanced skills than either the TEAMS or PPST. The TASP minimum competency level is defined as readiness for college level mathematics, i.e., college algebra.

The published specifications (i.e. competencies) of the TASP mathematics sub-test include areas which involve multiple skills. If one ignores the inductive reasoning competency, one finds that there are at least 63 distinct skill areas covered by the test (National Evaluation Systems, 1988). Since the TASP test is only 40 items in length, it cannot directly assess each of the 63 skills. Consequently, in the opinion of the UTEP project staff, while valid as a general assessment of present competence, the actual TASP cannot assess a student's skills in detail. This means that, of the four testing functions mentioned above, TASP scores can provide information only on the first: an assessment of present skills.

By contrast, the university needs information from the other perspectives: predicting success in college algebra, placing a student in an appropriate class, and in diagnosing special student needs. These needs require additional test development.

5. Test Development Procedures

The TASP specifications were rewritten by project staff into into 63 sub-skills. A pool of 290 items was written to fit these sub-skills. This pool was reduced, by project staff, to 150 items by a process of criticism and rewriting. Pilot forms of the predictor tests were developed: Forms C,D,E,F. In order to continue earlier basic skills research and assist with temporary validation several items were included from older tests developed to predict success on the mathematics sub test of the Pre-Professional Skills Tests (Burns, 1983).

Pilot test forms C, D, E, F were administered to ten groups of high school, community college, and university students during the late spring and early summer of 1989. Although, the actual TASP is untimed, these new UTEP tests were intended for use in conventional school settings. Since a de facto time limit of 50 minutes exists in such advisory situations, both the pilot tests and final tests were designed to be given in a period of 50 to 60 minutes. The total number of usable test scores obtained was 760. Demographic data on the students was collected and used as part of the data analysis.

In the end, four forms of the final product were developed: Forms H, J, L, and M. Forms H and J assess the same specifications as the TASP. These forms are for general advising purposes. Forms L and M are confidential UTEP campus editions which are intended for use in student placement in UTEP math classes. Forms L and M have only 36 TASP related items and add 4 extra pre college algebra items as compared to the TASP. All forms contain only validated items and clones of validated items.

Recommended cutoff scores were established to place students in Math 3010, 3011, and College Algebra on Forms L and M and to predict TASP passage on Forms H and J. Of course, such score must be considered tentative until an adequate pool of subjects takes the UTEP tests and subsequently takes the actual TASP test.

The philosophy of the cut-off scores for the new tests was the same as that used with the earlier PPST related tests. (Heger, 1986) Test scores are reported in three bands which are interpreted in terms odds of a particular student passing the mathematics section of the TASP on the first try. In addition, for the new tests, item by item matching of student performance with particular TASP skills is practical.

It is interesting to note that the derived score for placement in College Algebra is higher than the score which predicts success on TASP, challenging the notion that TASP competencies were sufficient for entrance to college algebra. Of course, policies and procedures regarding the use of these tests are the responsibility of the UT El Paso Academic Development Center and Mathematics Department.

For research purposes, draft test forms C, E, and F, and final test forms H, J, L, and M, contain five items which clone items in the earlier PPST related tests by Burns (1983). This permits cross comparisons of performance data with data collected during earlier PPST research (Heger, 1989).

6. Of Clones, Knock-offs, and Correlations

It is important to point out that the UTEP efforts regarding the PPST and more recently, the TASP have never been to develop clone tests which mimic the real test. True, if one had such tests available, one could advise students regarding their performance on the real test. But both development of such tests would be both impractical and unethical.

Imagine what it would take to develop an accurate knock-off test: a large number of students would have to take the proposed new test and the real thing, a costly process. Moreover, the process would have to be repeated at the TASP evolved into alternate forms and new stages of sophistication. If such an expensive process were undertaken, the results might infringe on the copyright of the real test, and not be available for use until well after the real test!

However, if one takes the published specifications of the commercial test and builds a test which covers the same, or similar skills, one might be able to do two things:

1. Make a reasonable prediction of the odds of a student passing the actual test, and
2. For unprepared students, analyze item results in light of refresher study and developmental coursework.

If such an approach were taken, test validation would consist of two avenues:

1. Validation of the predictive accuracy of the test for those students advised to proceed with the real test, and
2. Validation of the diagnosis, intervention, and subsequent success of participants on the real test.

Notice that neither of these validation tasks requires correlation of the advisory test scores with actual TASP scores.

For prediction purposes, the proportion or percentage of people who were told to immediately take the TASP who actually passed the TASP would be an appropriate form of analysis. For students who were told to take coursework prior to TASP passage, the courses taken between the test could be evaluated, but the direct comparison of the tests would be invalid because of the interventions between the test administrations. Needless to say, such validation efforts would need to be done separately for each institution using these tests.

5. Test Availability

Universities, community colleges, and high schools wishing to advise students on their chances of passing the mathematics portion of the TASP may use this test at no cost. The test should be especially useful in advising high school sophomores or juniors on the mathematics course selection. Recommended cut off scores are provided along with the tests.

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APPENDIX

THE UNIVERSITY OF EL PASO PRE-TASP MATHEMATICS TESTS

(FREE TO HIGH SCHOOLS AND COLLEGES)

THE TESTS:

A UTEP faculty team developed a battery of mathematics tests which predict success on the mathematics portion of the TASP. Temporary validation was also completed. Two test versions are for general dissemination to schools and universities for use in academic advising and student practice applications. Two versions are restricted to test security applications such as use in student placement in developmental mathematics classes. This project was supported by a grant from the Texas Education Agency Grant (ECIA - Attracting and Retaining Quality Candidates in Teacher Education).

TARGET POPULATION:

High school and college students who plan to take the TASP or who have failed the mathematics portion of the TASP. Students may take one test and take the second after a period of study as an assessment of growth.

DELIVERY METHOD:

Forms H and J of the U.T. El Paso tests are provided in single copies per request. The tests may be reproduced and used free of charge, as needed, as long as U.T. El Paso is given authorship credit and the tests are not sold.

LENGTH:

The U.T. El Paso tests can be administered in 50 minutes. Their application within a program is subject to local preference.

EVALUATION:

Temporary validation data are supplied with the tests. It is suggested that each institution conduct a local validation study. U.T. El Paso faculty would like to participate in data exchanges leading to large scale validation studies of these tests and of the holding power of intervention programs.

ADVISORS GUIDE TO
INTERPRETING UTEP MATH PREDICTOR TEST FORMS H AND J

1. Use of Forms H and J

These tests are designed to advise students relative to their preparation for the mathematics portion of the TASP test.

2. Overall performance figures:

Based on the research done at UTEP, at the El Paso Community College and in several El Paso area high schools, the following scores are predicted:

21 correct: The average for all people taking the test.
19 correct: The average for high school juniors.

3. Interpreting your score:

23 correct or higher: These students are very likely to pass the TASP on the first try with no special preparation.

17 correct through 22 correct: These students should pursue mild refresher study to prepare for the TASP.

16 correct or below: These students may need to take a course or pursue formal tutoring to prepare for the TASP.

4. Getting the most form the predictor test:

This test is available in two forms. Students can gain practice by taking a second test. The order of the tests does not matter.

The Answer Interpretation Key indicates the chapter of the official TASP study guide to refer to for assistance regarding particular items.

In addition, a cross tabulation of these items with formal classes in your school district might be useful.

(1989 edition)

UTEP MATH PREDICTOR TEST

FORM H INTERPRETATION CHART
1989 END OF GRANT

Test Item	Correct Answer	Item Relates to these TASP Study Guide Chapters:
1	c	10
2	c	10
3	b	10
4	b	10
5	a	11
6	d	10
7	b	11
8	a	14
9	b	18
10	c	11
11	e	13
12	b	13
13	c	13, 18
14	e	14
15	d	10
16	d	11
17	c	10
18	c	12
19	c	18
20	d	18
21	e	18
22	e	15
23	d	11, 15, 19
24	d	11
25	a	16
26	d	16
27	d	16
28	b	16
29	c	17
30	d	14
31	b	14
32	a	11, 19
33	c	11
34	d	10, 11
35	d	16
36	c	11
37	b	18
38	c	17
39	d	17
40	c	19

UTEP MATH PREDICTOR TEST

FORM J INTERPRETATION CHART
1989 END OF GRANT

Test Item	Correct Answer	Item Relates to these TASP Study Guide Chapters:
1	c	10
2	e	10
3	b	10
4	c	10
5	e	11
6	d	10
7	d	11
8	b	14
9	b	18
10	b	11
11	e	13
12	b	13
13	d	13, 18
14	a	14
15	b	10
16	b	11
17	e	10
18	c	12
19	d	18
20	b	18
21	a	18
22	e	15
23	a	11, 15, 19
24	c	11
25	a	16
26	c	16
27	b	16
28	b	16
29	d	17
30	c	14
31	d	14
32	c	11, 19
33	c	11
34	b	10, 11
35	d	16
36	b	11
37	a	18
38	e	17
39	c	17
40	c	19

NUMBER OF TEST ITEMS BY CHAPTER IN THE TASP PREPARATION MANUAL STUDY GUIDE

Number of items on Form H	TASP Manual Chapter Number	Number of items on Form J
8	10	7
10	11	9
1	12	1
3	13	3
4	14	4
2	15	2
5	16	5
3	17	3
6	18	6
3	19	3

TEST ITEM CODES RELATE TO THE FOLLOWING CHAPTERS:

_____. The Official TASP Test Study Guide. Amherst, MASS: National Evaluation Systems, 1989, 593 pp. ISBN 0-89-56-003-X

Chapter 10: Number Concepts and Computation
Chapter 11: Word Problems with Integers
Chapter 12: Graphs, Tables, and Charts
Chapter 13: Graphs of Number Relationships
Chapter 14: One and Two Variable Equations
Chapter 15: Word Problems with Variables
Chapter 16: Algebraic Expressions
Chapter 17: Quadratic Equations
Chapter 18: Solving Problems Involving Geometric Figures
Chapter 19: Apply Reasoning Skills

FORM H				FORM J			
Item	Anticipated Difficulty	Answer	Item Source	Item	Anticipated Difficulty	Answer	Item Source
1	.02	c	E 1 rev.	1	.02	c	E 1 rev.
2	.25	c	E 2 rev.	2	.25	e	E 2 rev.
3	.40	b	E 3	3	.58	b	E 3 rev.
4	.15	b	E 4	4	.15	c	E 4 rev.
5	.18	a	E 5 rev.	5	.13	e	E 5
6	.21	d	E 6	6	.25	d	E 6 rev.
7	.52	b	E 7	7	.50	d	E 7 rev.
8	.21	a	E 8	8	.25	b	E 8 rev.
9	.40	b	E 9 rev.	9	.55	b	E 9
10	.25	c	E 10 rev.	10	.10	b	E 10
11	.20	e	E 13	11	.21	e	E 13
12	.89	b	E 12 rev.	12	.89	b	E 12
13	.19	c	E 11 rev.	13	.19	d	E 11 rev.
14	.30	e	new	14	.30	a	new
15	.70	d	E 17 rev.	15	.70	b	E 17 rev.
16	.35	d	H 18 rev.	16	.35	b	H 18 rev.
17	.49	c	E 21 rev.	17	.49	e	E 21
18	.45	c	new	18	.45	c	new
19	.64	c	D 20	19	.75	d	D 24
20	.75	d	D 22 rev.	20	.75	b	D 22 rev.
21	.54	e	D 27	21	.56	a	D 26
22	.80	e	D 32	22	.80	e	D 36
23	.78	d	D 15	23	.75	a	D 14 rev.
24	.48	d	E 22	24	.48	c	E 22
25	.20	a	new	25	.20	a	new
26	.30	d	new	26	.30	c	new
27	.40	d	new	27	.40	b	new
28	.50	b	E 25 rev.	28	.50	b	E 25 rev.
29	.45	c	new	29	.45	d	new
30	.31	d	E 26	30	.31	c	e 26
31	.31	b	E 26	31	.31	d	E 26
32	.54	a	E 27 rev.	32	.54	c	E 27
33	.33	c	E 28	33	.33	c	E 28
34	.50	d	e 30	34	.50	b	E 30
35	.26	d	E 31 rev.	35	.26	c	E 31 rev.
36	.60	c	E 32	36	.65	b	E 32 rev.
37	.84	b	E 34	37	.84	a	E 37
38	.28	c	E 38	38	.28	e	E 38
39	.80	d	new	39	.80	c	new
40	.75	c	D 42 rev.	40	.75	c	D 42 rev.

Overall Estimated Difficulty
FORM H = .44

Overall Estimated Difficulty
FORM J = .45

(FORMS H AND J, 1989)

INTERPRETING YOUR SCORES ON THE UTEP MATH PREDICTOR TEST

by Herbert K. Heger

1. The Good News About Your Test Score

You just took a math test and want to know your score. More accurately, you want to know your score and what it means regarding your future. OK. Fair enough. That's what we want to tell you.

To begin with, this is no ordinary test. There is no passing or failing score. There are no grades connected to this test. This test does not admit you to anything and it does not keep you out of anything. Neither does this test advise you about what you should do. Rather, this test was designed to help you make your own decisions about your educational future.

The paper you are reading now is designed to

a) orient you to the Texas Academic Skills Program (TASP),
b) help you interpret your test score,
c) help you identify advising resources you can use in making your decision,
d) help you identify courses and tutoring services which can help you prepare for success in college, and
e) give you a sense of direction about your educational future.

Let's begin with the last item - a sense of direction about your educational future. Education is the basis for success in life. You have heard that before and you will hear it again and again. You may be a bit tired of hearing that message.

The fact that you took this test is evidence that you are nearing high school graduation. This means the hardest part is almost over. The good and fun part of education is about to begin. After high school you will find that you control more of what and when you learn. Ever, when there is mandatory content, it will be closely and clearly related to something you do want to know. The content may relate to a job skill or it may relate to something you enjoy. The content may relate to something you are curious about, or to some topic of general community concern like crime and pollution. In college, education will become more rewarding.

You will go to college. In El Paso the facts are these. More and more people are going to college, including more and more older people. It is not unusual to attend class with people older than you and even older than the professor. This is because industry is changing in El Paso and in the world. As a result ordinary jobs require more education and skill.

So, you say, that's great if you have a B average and rich parents! What about the rest of us? Don't give up! Don't panic. There is good news.

Both the University of Texas at El Paso and the El Paso Community College have a variety of student aid programs. In addition they schedule classes so that students who work full time can still attend college. So, regardless of your situation, college is possible for everyone.

And remember, regardless of your score on the test you just took, you have already learned a great deal. The hardest part is over. From here on you will be more and more in control of your life and you will exercise more and control over what to study and when to study it. Hang in there!

Now let's be specific. You took a math test. It was built to assess your chances of passing the TASP mathematics test if you took that test, with no preparation, today. The test also assesses your likelihood of admission to college algebra at UTEP. That brings us to the two questions: why TASP, and why math?

The Texas Academic Skills Program (TASP) includes tests of reading, writing, and mathematics. These tests are designed to assure that you are ready to begin college study without any background weaknesses. If you do not pass these tests you may begin college anyway. However, you will have to enroll for skill development course work until you do pass the TASP tests.

Although the TASP program is a Texas state requirement (begun in 1989), both the University of Texas at El Paso and the El Paso Community College have been offering refresher study courses and other basic skill development services for many years.

What is new is that if you need basic skill course work, you will not be able to avoid the issue! That, by the way, is good news for you. After all, you cannot succeed until you do have the skills.

The TASP is different thar the TEAMS test you must pass in order to graduate from high school. The TEAMS determines if you have the minimum skills to be awarded a diploma. The TASP measures skills necessary to be successful in college. In the areas of reading and writing you may hardly notice the difference between the two tests. Math, however, is different.

The TASP mathematics section assesses your readiness for collegiate mathematics. Generally, the first collegiate course one must take is college algebra, a course which is required for nearly every college degree in Texas. Consequently, you will take and pass college algebra some day.

The problem is simply that the college algebra course is based on the assumption that you have successfully completed algebra I, geometry, and some additional mathematics in high school. Many of you have not taken these courses. And that brings us to the mathematics test you just took.

When the state adopted the TASP requirement a number of faculty and administrators at the University of Texas at El Paso anticipated a high failure rate on the mathematics portion of the TASP due to the preparation gap. These UTEP people strongly felt that the gap could be prevented or corrected if students were given good advice in advance of college admission. Consequently a grant was obtained from the Texas Education Agency to develop the test you just took.

The test development project was completed with the assistance of the El Paso Community College, the El Paso Independent School District, the Socorro Independent School District, the Ysleta Independent School District, Loretto Academy, and Lydia Patterson Institute. All these institutions desire for you to plan ahead for TASP.

2. Your Score as Compared to Other Groups of People

This test is scored on the the basis of the total number correct. There is no penalty for incorrect or missing answers. A score of 16 means you got 16 right of the 40 items. Compare your score to the following statements:

Performance of Persons Who Took These Tests Prior to Publication in 1989

19 correct is the average score (mean) achieved by the high school juniors who took these tests.

21 correct is the average of all persons who took these tests prior to publication. This group included older students at El Paso Community College and students of all ages at the University of Texas at El Paso.

(The standard deviation of the test scores of the total sample population was approximately 5 points)

3. Determining your probable TASP Success

A score of 25 or above is equivalent to a passing score on the TASP test.

Based on the above data, it seems that students with a score of 16 or below definitely should take more mathematics classes before attempting the TASP.

High school students with scores of 17 through 22 probably should take another mathematics class.

College students with scores of 17 through 22 are likely to be able to prepare through a tutorial program or other refresher study.

Students with scores of 23 or 24 are very close to the level needed to pass the actual TASP test. This group may be able to pass the TASP with minimal self study.

4. Determining Your Probable Admission to College Algebra at UTEP

The TASP test assesses all mathematics skills prior to college algebra. A student must score approximately 70% to pass the TASP. For a variety of reasons it is possible to pass the TASP test and not be ready for college algebra; perhaps chief among these reasons is the fact that the TASP has space for too few algebra questions to permit accurate assessment of success in UTEP's Math 3106 or 3120.

Students with a score of 28 or higher are likely to be admitted directly to college algebra at UTEP.

Students with a score of 25 through 27 are very close to the level required for admission to college algebra at UTEP.

5. Notes of Caution

Students need to understand that their scores on this test are merely estimates of ability to be used for goal setting and other planning purposes.

No test of academic skill is perfect. Scores may vary on any particular day. In addition, passing standards for the actual TASP test are subject to change without notice by the Coordinating Board, Texas College and University System. Moreover, admissions standards to particular mathematics courses at the University of Texas at El Paso and the El Paso Community College are revised according to program and student need. Consult your counselor for further information.

6. Further Interpretive Assistance

A diagnostic breakout of your performance is possible through the use of the expanded performance analysis sheet. This sheet shows the skills assessed by each test item. Ask your counselor for help with this process.

7. In Closing

As this is being written we are entering a period in which we need teachers. Career opportunities in primary teaching, bilingual education, and math and science education are especially promising. There is a major shortage in candidates for math, science, and engineering careers of all kinds. But, regardless of career choice, a college education is usually necessary.

You have just taken a math test. As a student you are used to looking at the score negatively or competively. Try to look at this score positively. Even a low score is a basis for progress. Just as you know more today than five years ago, so too, you will learn in the future. The main thing is to keep at it!

REQUEST FOR UTEP TASP MATHEMATICS PREDICTOR TEST MATERIALS

I would like to request copies of the UTEP Tasp Mathematics Predictor Tests, Forms H and J and related interpretation material.

Name _____ Title_____

Department _____

Institution _____

Address _____

City _____

State _____ ZIP_____

Mail To:

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College of Education
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915-747-5300